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ABSTRACT

The ways that high school staff value, use, and share information about student background, performance, and behavior are an essential component of school improvement, especially in decisions involving the placement, instruction, and progress of disadvantaged students. Using survey data from seven high schools, the study summarized in this report examined three key aspects of information. Specifically, the study assessed the degree to which school staff deem information on students to be important, receive information about students, and share information about students with other staff. Findings show that school-to-school differences in the importance attached to information is small, but that differences among individuals in different positions in each school are more striking. Most information on student academic performance and behavior residing in these high schools is not exchanged among staff, and social service providers are more likely to receive several types of information than other school staff. Time to communicate with colleagues is positively related to both receiving and sharing information. Because of time limitations in schools, substantial progress in improving the production and exchange of information on students and their needs may be impeded. Included are 2 figures, 3 tables, and 16 references. (Author/MLH)

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An Analysis of How High School Staff Members Value and Exchange Information on Student Performance

Aaron M. Pallas, Gary Natriello

and

Carolyn Riehl

Report No. 23

October 1991

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The Center

The mission of the Center for Research on Effective Schooling for Disadvantaged Students (CDS) is to significantly improve the education of disadvantaged students at each level of schooling through new knowledge and practices produced by thorough scientific study and evaluation. The Center conducts its research in four program areas: The Early and Elementary Education Program, The Middle Grades and High Schools Program, the Language Minority Program, and the School, Family, and Community Connections Program.

The Early and Elementary Education Program

This program is working to develop, evaluate, and disseminate instructional programs capable of bringing disadvantaged students to high levels of achievement, particularly in the fundamental areas of reading, writing, and mathematics. The goal is to expand the range of effective alternatives which schools may use under Chapter 1 and other compensatory education funding and to study issues of direct relevance to federal, state, and local policy on education of disadvantaged students.

The Middle Grades and High Schools Program

This program is conducting research syntheses, survey analyses, and field studies in middle and high schools. The three types of projects move from basic research to useful practice. Syntheses compile and analyze existing knowledge about effective education of disadvantaged students. Survey analyses identify and describe current programs, practices, and trends in middle and high schools, and allow studies of their effects. Field studies are conducted in collaboration with school staffs to develop and evaluate effective programs and practices.

The Language Minority Program

This program represents a collaborative effort. The University of California at Santa Barbara is focusing on the education of Mexican-American students in California and Texas; studies of dropout among children of recent immigrants are being conducted in San Diego and Miami by Johns Hopkins, and evaluations of learning strategies in schools serving Navajo, Cherokee, and Lumbee Indians are being conducted by the University of Northern Arizona. The goal of the program is to identify, develop, and evaluate effective programs for disadvantaged Hispanic, American Indian, Southeast Asian, and other language minority children.

The School, Family, and Community Connections Program

This program is focusing on the key connections between schools and families and between schools and communities to build better educational programs for disadvantaged children and youth. Initial work is seeking to provide a research base concerning the most effective ways for schools to interact with and assist parents of disadvantaged students and interact with the community to produce effective community involvement.

Abstract

The ways in which high school staff value, use, and share information about students' background, performance, and behavior are an essential component of school improvement, especially in the process of making decisions about the placement, instruction, and progress of disadvantaged students. This study, using survey data from seven urban high schools, examines three key aspects of information: the degree to which school staff deem information on students to be important, the degree to which school staff receive information about students, and the extent to which school staff share information about students with other staff.

Findings of the study include the following: School-to-school differences in the importance attached to information are small, but differences among individuals in different positions in each school are more striking; most information on student academic performance and behavior that resides in these high schools is not exchanged among the staff, and social service providers are more likely to receive several types of information than other school staff. Time to communicate with colleagues is positively related to both receiving information and sharing information. Because such time is in short supply in schools, substantial progress in improving the production and exchange of information on students and their needs may face a critical barrier.

Introduction

Different images of organization emphasize different patterns or structures of information flow (Morgan, 1986), but virtually all definitions of organization consider information flows, regardless of their form, as central organizational processes. Students of organizations as far back as Weber (1947) have pointed to the collection and recording of information as a key element in bureaucratic organization.

Contemporary scholarship has also considered communication patterns and structures within organizations. For example, contingency theory has considered the relationships between the uncertainty confronting organizations and the structural arrangements and consequent information processing patterns in those organizations (Lawrence and Lorsch, 1967; Galbraith, 1973). Political perspectives on organizations have considered the relationship between power and access to information in organizations (Pfeffer, 1978). The view of organizations as loosely-coupled systems has examined discontinuities in the exchange of information among individuals in organizations (Wilensky, 1967; Weick, 1976).

While much of this conceptual work has examined the *structure* of information flows in organizations, we know rather little about the specific *content* of information embodied in these structures. In this study, we examine a highly studied organization, the secondary school, and we consider patterns in the demand for and exchange of specific informational content -- data on students -- by diverse organizational actors, including top administrators, teachers, and other high school staff members.

Our goal is to understand the factors that determine why some school staff members believe that they need information on students to do their jobs well, and why others do not. We also strive to explain why some school staff receive and share various types of information about students, and others do not.

In addition to our conceptual interest in understanding information-processing in organizations generally, we have a pragmatic interest in school improvement, and see information on student background, performance and behavior as an essential part of any credible school improvement effort.

From the standpoint of contingency theory, schools need to reduce the gap between the information that is needed to serve students appropriately and the information that is actually available to serve students (Natriello, McDill and Pallas, 1990). Increasing the availability of information on student academic performance and behavior is one way to reduce this gap, but when school staff lack such information, they are in a poor position to do so. Although most teachers may experience a great deal of uncertainty about student performance and their own effectiveness (Lortie, 1975), the uncertainty gap is widest in urban high schools serving disadvantaged students, where school inputs vary greatly, the technology of instruction is weak and diffuse, and there are uncertain outputs as well.

In examining some basic information flows in the high schools involved in this study we focus on three key aspects of information. First, we consider the degree to which school staff -- teachers, administrators, counselors, and others -- deem information on students to be important. Second, we examine the degree to which school staff receive information about students. Third, we note the extent to which school staff share information about students with other staff.

These three aspects of student information are conceptually different, and may have different determinants. For example, the perceived importance of information on students represents the ideal access to information, while the receipt and sharing of information represent the actual access to information. While the perceived importance of information is not directly affected by the capacity of the organization to supply such information, clearly

the actual patterns of information exchange are affected. Thus, both the receipt and sharing of information on students should be more responsive than the perceived importance of such information to organizational and workplace conditions. Moreover, the receipt of information may be a passive activity, while the sharing of information may require more active participation. Put differently, the reception of information has somewhat more to do with the activities of others in the school than with the activity of a focal respondent, while the opposite is true for the sharing of information, although formal systems for the production and exchange of information may mitigate such differences.

Perspectives on Information in Schools

In thinking about the determinants of the perceived importance of and exchange of student information in schools, we have identified several different perspectives that suggest testable hypotheses. These include structural, political/symbolic, technological, quality and opportunity perspectives on information.

Structural. Organizations differ in the extent to which they establish processes and resources to collect and process information (Scott, 1981). Although most high schools have similar formal structures, they may have different information-processing systems and capacities. For example, some high schools have in place elaborate computerized information systems that contain a great deal of information on student academic performance and behavior. Whether this information is accessible to staff members is an empirical question, but certainly the presumption is that it is readily available.

Other high schools rely on paper files to which few school staff have access. Cognitive dissonance theory would predict that staff in schools where student information was not available would come to define information as less important to their day-to-day work, as they learned to perform their jobs without the requisite information. As a result, we may find differences among the schools in the study in both the perceived importance of information and the exchange of information.

We also view differences among job positions as part of a structural perspective on information in schools. Differing perspectives on organizations suggest different predictions about the nature of information exchange within high schools. A rational-bureaucratic view of organizations suggests that information on students should be of central concern to high school teachers, administrators, counselors, and other staff. Students constitute the largest group within high schools and the group to whom the activities of the high school are presumably directed. In this view, then, at least some importance is attached to learning about students by the staff members of these organizations. Classical management theory would suggest that information should largely flow from subordinates to superiors -- that is, from teachers to administrators.

A contrasting position is offered by the view of organizations as loosely-coupled systems. This perspective argues that the formal structure of organizations is unconnected to the technical core work activity (Weick, 1976; March and Olsen, 1976). In this view, the formal organizational arrangements of schools are decoupled from instructional activities, and the "logic of confidence" replaces direct coordination and control (Meyer and Rowan, 1978). There is, then, no real need for information on students to be exchanged among teachers and administrators, and in particular no need for information to move up the school hierarchy from teachers to administrators. In fact, managers may have good reasons not to know about the activities of those further down in the hierarchy (Weick, 1976; Meyer and Rowan, 1978).

These two perspectives on the structure of high schools thus suggest competing hypotheses. Classical management theory predicts that managers will place a higher value on student information than their subordinates, and that lower-level staff will share information with their superiors. In contrast, the loose-coupling perspective predicts that managers will not value student information more than teachers and other direct-service staff, and that managers are no more likely to receive information on students than are their subordinates.

Political/symbolic. There has been much discussion of the role of information processes in shaping the distribution of power and influence in organizations (Pfeffer, 1978). The covariation between access to information, on the one hand, and power and influence, on the other, has largely been interpreted as "knowledge is power," or at least that knowledge may lead to power.

We also suspect, however, that the converse is true. Influence over key decisions in an organization may lead individuals to value information relevant to those decisions and to share and receive information to a greater extent. School staff may attempt to exert influence by communicating various types of information. Information can have both instrumental and symbolic value, as leaders try to control the definition of reality in their work settings (Neumann, 1989). We therefore expect that influential individuals in the school will place a high value on student information, and will be more likely both to receive and share such information.

Technological. There has also been a great deal of discussion of the role of technology in shaping various organization processes (Scott, 1981; Pfeffer, 1978; Perrow, 1986). Although the schools in the current study are in the same sector and thus presumably utilizing the same technology of education, there are related differences at the individual level in what Dornbusch and Scott (1975) refer to as task conceptions. Some school staff see their responsibilities toward students as quite broad, extending well beyond the school walls; others carry a relatively narrow view of their charge. A broad conception of responsibility implies a more uncertain set of tasks that presumably require more information to carry out well. We therefore expect that a broad conception of the task of education and schools will be associated with a greater importance attributed to information, and to an increased receipt and sharing of student information.

Quality. An obvious, if often overlooked, aspect of information that affects its role in all kinds of organizations is the quality of information. Information is not monolithic; some information is accurate and other information is less reliable. We hypothesize that information that is perceived to be inaccurate will be less likely to be valued and exchanged.

Opportunity. It is important to recognize that exchanging information, both receiving and sharing, can only take place if there are opportunities for exchange. One of the most important opportunity factors is the availability of time to meet with other school staff. Thus, we expect that the more that school staff meet with other staff members, the more they will both share and receive information on students. But since there is no direct theoretical linkage between collaboration time and the importance of information, we do not consider time as a predictor of the value of information.

Methods and Prodedures

In the spring of 1990, we administered a half-hour survey on the use of student information in schools to staff in seven high schools in the Northeast that serve predominantly disadvantaged populations. Representatives from each school chose the target population for their school, always including teachers, counselors and administrators; some added school safety workers, paraprofessionals, and the staff of outside agencies working in the school. The response rates were exemplary. In five of the seven schools, the response rate exceeded 95%. Overall, the response rate for the survey was 87%. We received a total of 1106 completed questionnaires.

The survey covered a wide range of issues involving how information about students is used and valued in high schools. In this paper, we focus on factors that predict respondents' perceptions of the importance of student information for their job

performance, and the determinants of the receipt and transmittal of various types of student information. We use as predictors school-to-school differences, the respondent's job position, the respondent's influence over decisions made in the school, the respondent's conception of the task of the school, the quality of information, and, in the cases of receiving and sharing information, the time available to meet with others in the school.

Independent Variables

School-to-School Differences. We represented average differences across the seven schools in the study with a set of six dummy variables. The omitted category is School 2, which had the most respondents.

Job Position. We asked respondents to write in their position or job title, and to list in which offices or departments they worked in their school. Based on these responses, we formed a set of categories that describe positions on the basis of function and hierarchy. In approximately descending order of hierarchy, these categories are:

Principal - coded 1 if respondent was building principal, and 0 otherwise.

Assistant Principal - coded 1 if respondent was an assistant principal, and 0 otherwise.

Departmental Administrator - coded 1 if respondent was a departmental administrator (including subject area department heads and special program coordinators) and 0 otherwise.

Guidance Counselor - coded 1 if respondent was a guidance counselor (including grade advisor, college advisor, career counselor/educator/specialist, crisis intervention teacher, and pregnancy prevention coordinator), and 0 otherwise.

Social Service Worker - coded 1 if respondent was a social service worker (social worker, psychologist, substance abuse coordinator/specialist, child study team member, community-based organization site supervisor or staff) and 0 otherwise.

Teacher - coded 1 if respondent was a classroom teacher and 0 otherwise.

Instructional Paraprofessional - coded 1 if respondent was an instructional paraprofessional (including teachers' aide/assistant, educational assistant/associate, and laboratory specialist/assistant), and 0 otherwise.

These categories are not mutually exclusive, as a respondent might be both a classroom teacher and a departmental administrator. They also do not represent the hierarchy of the school in the strict reporting sense since, for example, teachers do not report to guidance counselors or social service personnel.

Influence over school policy. We asked respondents to report how much influence they have over decisions in the following areas in their schools: organizing the curriculum; developing an instructional approach; allocating supplies and materials; referring students to special services; developing student schedules; and developing new programs to meet student needs. For each area, respondents indicated either major influence (coded 4), moderate influence (coded 3), minor influence (coded 2), or no influence (coded 1). We constructed a measure of influence that used the mean of these six responses. The alpha reliability of this scale is .80. The overall mean was approximately 2.0, indicating that the respondents on average reported minor influence over school decisions.

Conception of the Task of the School. We asked respondents to report their opinions about the role of teachers and schools in teaching and learning, using a 5-point Likert-type set ranging from "Strongly Agree" to "Strongly Disagree." From these, we formed a scale scored as the mean of the six items. The items, which assess the extent to which respondents feel teachers and schools should be responsive to student needs, are:

"A teacher's main responsibility is to present the school curriculum in a professional manner; it is up to the students to decide how much work they will put into school";

"What students learn in school is determined more by their own efforts than by what teachers and other staff do";

"It does little good to learn about student problems outside of the school because you can't do anything about them anyway";

"Schools should be concerned with what happens to students inside the school, and not with students' problems outside of school";

"It is more important to provide a positive learning environment than to try to respond to individual student needs" (scoring is reversed); and

"Teachers should try to individualize the instruction they provide to their students".

The alpha reliability of the scale is .66.

Quality of information. We asked respondents their opinions on how accurately different types of student information reflect student performance or behavior. Possible responses included "very accurately," coded 4, "accurately," coded 3, "somewhat accurately," coded 2, "not at all accurately," coded 1, and "I don't know," coded missing. This question was asked in regard to the following 15 types of student information: standardized tests; teacher-made tests or quizzes; graded homework; written essays; group projects; individual projects; laboratory assignments; oral presentations; participation or behavior in class; talking to teachers; talking to counselors; talking to administrators; talking to parents; talking to students; and observing students outside the classroom. The analysis predicting the importance of information uses a generalized assessment of the accuracy of student information, relying on the mean of eight of these items. The alpha reliability of the scale is .85. The analyses of the determinants of sharing and receiving information employ as a predictor the respondent's rating of the accuracy of the specific type of information at issue.

Collaboration Time. We asked respondents how much time per month, on average, they spent meeting with other school staff on school matters (including lesson planning, curriculum development, guidance and counseling, evaluation of programs, and other collaborative work). The six response options, which ranged from "less than 15 minutes" to "10 hours or more," were coded as fractions of hours.

Dependent Variables

Importance of Information. We asked respondents how important it was for them to have various kinds of information about individual students to do their jobs properly. Respondents rated the importance of 18 different types of information, including contact information, such as address and phone number; information on past academic performance, such as previous grades, GPA, rank in class; information on family conditions, such as family problems, single-parent family, and economic status; and teacher evaluations of a student. Respondents rated each of these 18 types of information as either extremely, very, somewhat, seldom, or never important. These five categories were coded 1 to 5, with "never important" coded 1 and "extremely important" coded 5. For this paper, we form a measure of importance that represents the average of these 18 responses. The mean of the importance variable is 3.69, indicating that respondents view information about students as somewhat to very important for doing their jobs properly. The alpha reliability of this scale is .93.

Receipt and Sharing of Information. We asked respondents whether they exchanged various types of information on student academic performance and behavior with other staff in the school. Our questions covered twelve different types of information, including formal, recorded information (student files, standardized test scores, and student attendance), classroom performance indicators (performance on teacher-made tests, homework, essays, projects, laboratory assignments, and oral presentations), and informal information (informal discussions with teachers, counselors, administrators, parents, or students; observing students in the classroom; and observing students outside the classroom). For each type of information, respondents

reported whether they (1) share this with other staff, (2) receive this from other staff, (3) both share with and receive from other staff, or (4) neither share with nor receive from other staff. We constructed two variables for each type of information, based on these response categories. The receipt variables are coded 1 if the respondent reported receiving a particular type of information from others, and 0 otherwise. The sharing variables are coded 1 if the respondent reported sharing a particular type of information with others, and 0 otherwise.

Results

Determinants of the Perceived Importance of Information

We have already seen that respondents in the seven high schools deem information on students, on average, somewhat or very important for doing their work. The relationships between the perceived importance of information on students and variables suggested by various perspectives on information in organizations are presented in Table 1. This table presents the results of regression analyses in which the dependent variable is the perceived importance of information and independent variables represent effects suggested by various perspectives on information in organizations.

The results in Table 1 show that school-to-school differences in the importance attached to information are small and generally not significant. Only in School 5 do respondents attribute significantly less importance to information on students, relative to the reference group, School 2.

Differences in the importance attached to information on students are more striking among individuals in different positions than among individuals in different schools. Guidance personnel and social services personnel report significantly greater importance attached to information on students than those in the other occupational groups, and departmental administrators tend to do so as well ($p<.06$). The failure of teachers to place as high a value on student information as these other staff members may be explained by their tendency to conceive of the task of schools as being less responsive to the needs of students and their tendency to perceive information on students as less accurate than those in other positions.

The political perspective provides a useful complement to the analysis of the impact of the structure of positions in understanding the importance attached to information. The zero-order associations between job position and influence over school policy reveal that assistant principals perceive themselves as having the most influence over school policies, followed by departmental administrators, principals, guidance counselors, teachers, social service providers, and paraprofessionals. Thus, there is a rough correspondence between the structure of positions and the influence exercised by incumbents of those positions. The ranking of assistant principals and departmental administrators as more influential than principals is probably explained by the inclusion of areas such as "referring students to special services" and "developing student schedules" in the items measuring influence over decisions. Even controlling for the effects of structural positions, Table 1 shows that respondents with more influence over key decisions in a school are more likely to deem information important for performing their job.

Insert Table 1 Here

The technological perspective was represented in

our analyses by the conception of the task of the school, more specifically by the degree to which the task of the school was seen by respondents as responding to student needs. Assistant principals, departmental administrators, guidance counselors, and social service providers were more likely to have this conception of the task of the school than were principals, teachers, and paraprofessionals. As might be expected, Table 1 reveals that individuals who viewed the mission of the school as being more responsive to student needs perceived information on students as being more important for performing their job than individuals who viewed the mission of the school as being less responsive.

Finally, the quality of information perspective was represented by the perceived accuracy of information on students. As we anticipated, Table 1 shows that when individuals perceived information on students as being more accurate they also perceived it to be more important.

Determinants of the Receipt and Sharing of Information

The proportion of respondents who reported transmitting and receiving these various types of information on student academic performance and behavior is displayed in Figure 1. This figure shows, for each of the twelve types of information, the proportion sharing such information with other staff, and the proportion receiving it from other staff.

Insert Figure 1 Here

The overall import of this figure is unmistakeable: most information on student academic performance and behavior that resides in these high schools is not exchanged among the staff. Informal information is much more likely to be shared among staff than are more formal types of information or classroom academic performance data. The one exception to this is the sharing and receiving of student attendance information. Teachers are the major providers of attendance data, and these data are often fed back to them for record-keeping purposes.

Although there are statistically significant differences across schools in the extent to which various types of information about students are shared or received, most of the variation is within schools, not between them. Put differently, the proportion of respondents indicating that they receive or transmit various types of student information is relatively similar across schools. Figure 2, which shows the proportion of respondents who report transmitting and receiving performance on teacher-made tests, documents this. In this figure, the seven schools in the sample are arrayed in ascending order according to the proportion of respondents who reported receiving information on students' performance on teacher-made tests. Although this proportion ranges from 33% in School 1 to 52% in School 4, the chart implies a pattern of greater similarity than difference across the seven schools.

Insert Figure 2 Here

Even these modest differences across schools may reflect school-to-school differences in the experiences, values, and positions held by respondents. The sample consists of a diverse set of respondents whose positions, working conditions, and attitudes toward teaching and student information differ, and these varying attributes of respondents likely are distributed unequally across the sample schools. Consequently, some of what we have identified as school-to-school differences may really reflect differences in the types of staff represented in the sample.

We are primarily interested in the direct effects of structural, political, technological, quality and opportunity factors on the sharing and receiving of information on student academic performance and behavior. To examine the simultaneous influence of these factors, we regress individuals' reports of

the sharing or receiving of different types of student information on (1) a vector of dummy variables reflecting differences across schools, (2) a vector of positional variables representing differences in job function and hierarchical position, (3) influence over school policy, (4) collaboration time, (5) attitudes toward school responsiveness, and (6) the perceived quality of the information. These analyses resulted in a total of 24 regression equations (predicting the receipt of the 12 types of student information and the sharing of these types of information).

Although each of these regressions contributes to our understanding of student information exchange among school staff, we report only a subset in detail. In particular, we examine the receipt and sharing of standardized test scores, teacher-made tests, oral presentations, and informal discussions. This subset of the information types includes examples of several types of information, including formal school records (i.e., standardized test scores); objective classroom performance (performance on teacher-made tests); less formal classroom performance (oral presentations); and informal information on student performance and behavior (i.e., informal discussions with teachers, counselors, administrators, parents, or students).

Table 2 reports regressions predicting the receipt of standardized test scores, performance on teacher-made tests, oral presentations, and informal discussions with others. The patterning of results is relatively consistent across these four different types of information, as similarities outweigh the differences. Once differences in the mix of jobs performed by respondents and in their working conditions are taken into account, school-to-school differences are relatively small. Staff in School 7 are somewhat more likely to report the receipt of various types of information than staff in the other schools; this is true for teacher-made tests and oral presentations in Table 2, and for five of the other eight types of information that are not reported. With this one exception, however, whether a staff member receives information is more dependent on what happens within a given school than the particular school in which the staff member works.

Insert Table 2 Here

Table 2 also shows how the receipt of information differs for individuals with different job positions in the school. These positions are arrayed along a continuum of hierarchy, with the principal at the top and instructional paraprofessionals at the bottom. Positions also differ in the extent and ways in which they involve individual students, which may structure the way information flows to various staff in schools. Table 2 clearly shows that there is no evidence that individuals in higher positions in the hierarchy receive more information on student performance and behavior than individuals who are lower in the organizational authority structure. The principal, for example, may receive *as much* information as individuals with more direct contact with students, but the estimates are imprecise (there are only six principals in the sample).

Social service providers are much more likely to receive several types of information than other school staff. Comparing social service staff to assistant principals, for example, we observe that social service staff are 35 percentage points (.384 - .038) more likely to receive information on students' performance on teacher-made tests than are assistant principals. This is perhaps the most extreme difference represented in these comparisons, but in fact social service staff are significantly more likely to receive each of the four types of information represented in Table 2, as well as more likely to receive some of the remaining eight types of information not reported in this table.

Table 2 also suggests that teachers are more likely to receive certain types of information than other school staff. The pattern is that teachers are more likely to receive informal information and formal student performance data (i.e., standardized test scores and student attendance data) from others, but they are not more likely to receive information on classroom performance from others. This is consistent with the image of the isolated classroom teach-

er who produces information about students' classroom performance for his or her own use, but does not receive parallel information from other teachers or other school staff.

If we divide the job positions roughly into direct service providers and others, there is a tendency for those school staff whose primary responsibilities involve direct contact with students to receive more information on student academic performance and behavior but the relationship is not terribly strong. While social service providers receive a wide range of information on students, teachers receive a narrower range, and guidance staff report receiving above-average amounts only of informal discussion and student attendance data. The discrepancy between the information received by guidance staff and social service staff is intriguing, since these functions are superficially quite similar. It may be that guidance caseloads are much heavier than social service caseloads, and that social service staff have more time to make use of a wider range of student information.

While position in the school hierarchy was largely unrelated to the receipt of student information, those respondents who report a great deal of influence over school policy are substantially more likely to receive diverse kinds of information on students. Influence is significantly related to the likelihood of information receipt for each of the four types of information reported in Table 2, and for seven of the eight remaining types of information.

The effects of influence are among the largest we observe for any predictor. Everything else being equal, a respondent reporting moderate influence over school policy is seven to 14 percentage points more likely to receive information than one reporting only minor influence over school policy.

We examined the effects of two other attitudinal factors on the receipt of information. First, we considered respondents' attitudes toward school responsiveness, the extent to which they saw the school in an activist role responding to students' problems and needs. Attitudes toward responsiveness were largely unrelated to the likelihood of receiving student information. Second, we examined whether the respondents' perceptions of the quality of information affected the kinds of information about students they receive. We found no evidence that the perceived quality of information influenced the extent to which respondents received information about student academic performance and behavior from other school staff. The only statistically reliable finding here, a negative relationship between the perceived quality of information and the receipt of informal discussions, is uninterpretable.

Time spent meeting with others may be an especially important structural feature of the workplace that determines access to various types of information. The amount of time per month that respondents reported collaborating with other school staff was directly related to the likelihood of receiving various types of information. Table 2 shows that each hour of collaboration increased the likelihood of receiving information by about one percentage point. Thus, an individual who met with other school staff for 10 hours per month is about 10 percentage points more likely to receive information on standardized test performance, for example, than one who met with other school staff for just one hour per month. This pattern holds generally for the other types of information not reported in Table 2.

Receiving and sharing information are independent activities, and while we might expect to see some general similarities in the patterning of the determinants of sharing and receiving information, we also expect to see some differences. For example, teachers, in particular, produce a great deal of information on students, and may be more likely therefore to share information with others than to receive it. Similarly, a school's routine for disseminating daily attendance data may structure who receives attendance information, while not constraining the ability of individual teachers or other staff to share that attendance data with other staff. As we noted in the introduction, individuals may have more control over the sharing of information with others than over the receipt of information from others.

We explore these conjectures in Table 3, which displays regression equations predicting the sharing of various types of information. As in Table 2, we report the determinants of sharing standardized test scores, performance on teacher-made tests, oral presentations, and informal discussions with teachers, counselors, administrators, parents, or students. We use the same variables to predict the sharing of information that we used to predict the receipt of information.

Insert Table 3 Here

As with the receipt of information, school-to-school differences are not large. There does seem to be more sharing and receiving of information in Schools 4 and 7, but the differences among the schools are not large on average. One future line of research we hope to pursue is examining whether there are school policies and practices in place in these schools that facilitate the sharing of information among school staff.

Although the differences among schools are relatively consistent for the receipt and sharing of information, the various job positions have quite different effects on the receipt and sharing of information, respectively. Social service staff were much more likely to receive a wide range information than other school staff, but they are not more likely to share most of that information with other school staff. Social service providers received formal records, classroom performance data, and informal information, but they are likely to share just informal discussions and classroom observations. In contrast, guidance staff were more likely to receive only informal information on student performance and behavior, but they provide both informal (informal discussions and out-of-class observations) and formal (student files, attendance, and standardized test scores) information to other school staff.

Teachers (and to a lesser extent, instructional paraprofessionals) are the primary producers of data on student classroom performance and behavior, and they are also the primary transmitters of those data. The flow of classroom performance information is fascinating; teachers produce classroom performance data, and they share them with other staff, but apparently not with other teachers, who might have the greatest needs for student performance information. In fact, Table 2 indicates that the primary recipients of teacher-produced classroom performance information are social service providers.

As with the receipt of information, there is no evidence that high school administrators are more likely to transmit information about student academic performance and behavior to other staff members. This is consistent with the relationships between position and the importance attached to information reported in Table 1 that show that principals and other administrators do not find student information substantially more important for carrying out their jobs than do other staff members.

As was true for the receipt of information, however, respondents with greater influence over school policy are more likely to transmit student information than those reporting less influence over school policy. Influence is not restricted solely to school managers; the correlation between perceived influence over school policy and having a managerial position (i.e., principal, assistant principal or departmental administrator) is only about .25. Thus, throughout the school hierarchy, those individuals who report more control over their work are more likely to share various types of information on student academic performance and behavior. This pattern is observed for all four of the information types reported in Table 3, as well as seven of the eight other types of information.

We might expect staff members' personal beliefs and attitudes to be more predictive of the sharing of information than the receipt of information. For example, teachers may receive their students' standardized test scores whether they believe them to be accurate reflections of student performance or not. But such teachers may decide to transmit to other school staff only those measures of student

performance and behavior that they believe to be accurate. In fact, there is some evidence that supports this interpretation. As Table 3 shows, the extent to which respondents believe that standardized test scores and oral presentations accurately indicate student academic performance and behavior affects whether or not they share such information with other school staff. This is true for five of the eight types of information which we aren't reporting as well. The results indicate that a respondent who believes that standardized tests and oral presentations are very accurate is nearly 25 percentage points more likely to share that information with others than a respondent who believes that these forms of information are not at all accurate.

The pattern is not as consistent for attitudes toward responsiveness. Our implicit conception of responsiveness involves strategies for solving an information problem: the matching of school educational and social services to student needs. We hypothesized that staff who saw a broad, activist role for the school would value information and would share it with others. As we saw in Table 1, such respondents did value information more highly than respondents with a narrower view of the school's mission. But there is scant evidence that these same respondents are more likely to share information on student academic performance and behavior with other staff members. Table 3 documents that staff who believe that schools should be responsive are more likely to share informal discussions, but no more likely to transmit standardized testscores, teacher-made tests, or oral presentations. The only other types of information predicted by attitudes toward responsiveness are observations outside of the classroom and student attendance data. These are the types of information that have the most bearing on students' lives and problems outside of school, so it may be that responsiveness pertains primarily to respondents' perceptions of the school's responsibility for students' problems outside of school.

The other structural workplace condition, time spent collaborating with other staff, is related to the sharing of several types of student information. Table 3 shows that respondents who meet more frequently with other school staff are more likely to share standardized test scores, oral presentations, and informal discussions. Our examination of the entire range of student information shows that increased collaboration time affects the sharing of formal and informal information, but has no effect on the sharing of most classroom-level performance data collected by teachers.

Discussion

Our results can be considered from the six perspectives discussed at the outset. The structural perspective calls our attention to school-to-school and positional differences. The differences among the seven schools in our study were relatively small in terms of all three dependent variables. This occurred despite what appear to be some substantial differences in the degree to which the leaders of the seven schools have invested in information processing technology. School 1 had no computer-based record systems and poorly developed manual systems. Even basic contact information such as student addresses and phone numbers was difficult to obtain. In contrast, the leaders in School 6 had invested hundreds of thousands of dollars in a computerized student data base and a network of workstations at which such data could be accessed.

The other five schools fell somewhere between these two extremes. Yet these differences were not reflected in the importance that school staff accorded to information or in the volume of information about students exchanged among school staff.

There are several possible explanations as to why the information processing capacity of the schools in the study may not have differed substantially despite the apparent differences in the available

infrastructure. First, access to the information resources may have been limited to a small number of staff, either those with positions that required it or those with an inclination to take advantage of it. Second, much of the information on students is gathered by teachers, and their access to information on students, at least their own students, may be affected more by their daily contact with students and less by the availability of school-level information resources. Third, the presence of elaborate computerized information systems in a school does not compel staff members to make use of such a system, and in fact may make data *less* accessible than before. In any case the rather small differences among schools suggests that changing the flow and utilization patterns for information in schools may require substantial changes in the schools themselves.

Unlike school-to-school differences, our analysis of positional differences found substantial variation. Guidance counselors, social service providers, and, to a lesser extent, departmental administrators deemed information more important than others in the school; social service providers and teachers were more likely to receive information; and teachers and counselors were more likely to share information. The patterns of differences by position permit at least two interpretations.

One interpretation would offer confirmation for the loose-coupling interpretation by emphasizing the seeming disconnection of higher administrators, particularly principals, from information on students and their performance. This interpretation would support the findings of Meyer and Rowan (1978) in their analysis of the Bay Area study of elementary schools which portrays principals as rather disconnected from the central work of the school.

An alternative interpretation would support the more classical structural perspective by emphasizing that those in the middle levels of the hierarchy, guidance staff and social service providers, are actively participating in the exchange of information on students with teachers. Recall that it is these same middle level staff who view the task of the school as being more responsive to students and their needs. It may be that top management, confronted with other responsibilities such as communicating with the external environment (i.e., the central district office and the community), must rely upon middle level administrators within the school to attend to an analysis of student needs, to the extent that such an analysis actually occurs.

It is difficult to know, though, whether to conceive of guidance and social service staff as managers or line workers. Although teachers do not report to these staff, they typically are viewed as having special expertise, and command expert authority. School systems frequently defer to the judgments of guidance and social service staff. Yet their expertise does not extend to the management of instruction, and in fact their work is rarely closely coordinated with instructional activity.

It also is unclear whether guidance and social service staff should be seen as divorced from the technical core activity of secondary schools. We tend to think of the core activity of schools as instruction. The core activity of secondary schools, however, is the transformation of raw student inputs into graduates, a socially constructed classification with commonly agreed-upon characteristics, knowledge, skills, and values. While instruction clearly is an important part of this definition of the technical core, instructional support may be an equally valid component. In this view, social service staff whose primary task is to keep students in school could be even more central to the technical core than teachers.

High schools are complex organizations with diffuse goals, and there may in fact be multiple technical core activities. It may be that the high rate of the receipt of student information by mid-level staff and teachers indicates that *both* are doing the work of the technical core. But it is important to note that this does not imply that these multiple core activities are coordinated in any way, or that they have anything to do with one another. More explicit information about who is providing what information to whom might shed light on the coordination issue.

Our uncertainty about how to characterize guidance and social service staff makes it difficult to judge whether or not the finding that such staff value and exchange information on students lends support to the loose-coupling perspective. In any case it is important to try to understand the role of these mid-level personnel in the flow of information, and future research should examine their activities more closely.

The political perspective draws our attention to the participation of respondents in school decision making activities. The influence of individuals in school decisions was positively and strongly related to the importance they attached to information on students and to the receipt and sharing of such information. This was true even when we controlled for the effects of formal position. This positive relationship is encouraging not only because it suggests that decisions are being influenced by those who are most well informed, but also because it suggests at least the possibility that influencing sharing may lead to increased interest in information on students and their needs. Of course, the relatively superior position of those with influence in the information exchange process says nothing about whether enough information or enough good information is being exchanged to result in better decisions.

The technological perspective calls our attention to the conceptions of the task of the school held by respondents. Although conceiving of the task of the school as being more responsive to students and their needs does lead school staff to deem information on students more important for doing their jobs effectively, it does not affect either receiving or sharing information. It may be that receiving information is determined by the actions of others and that sharing information on students requires others with a similar task conception with whom the information can be shared for good effect.

The quality of information perspective suggests that the accuracy of the information on students should affect both the degree to which it is deemed important and the exchange of such information. Information perceived to be more accurate is deemed more important and is somewhat more likely to be shared. Of course, the perception of accuracy may have little to do with the actual accuracy of the information.

The opportunity perspective suggests that working conditions must allow individuals an opportunity to use information. Our analyses revealed that time to communicate with colleagues is positively related to both receiving information and sharing information. Since such time is notoriously in short supply in schools, substantial progress in improving the production and exchange of information on students and their needs may face a critical barrier.

The major limitation of this study is that the data are cross-sectional. For example, the importance that respondents attribute to information on students may be as much a reflection of the availability of such information as a determinant of availability. Our data cannot disentangle the complicated, possibly reciprocal relationships among information exchange, structural features of the workplace, and organizational culture. The assumptions that we have made about causal ordering are, we think, defensible for the purposes of this exploratory study, but a longitudinal picture tracking change and stability in information flows and other aspects of secondary school culture and structure is sorely needed. Only a longitudinal study can hope to provide a basis for judging how difficult it might be to change information flows and exchange patterns through the introduction of new policies, programs, and procedures.

The patterns reported here provide some new insights into the operation of schools and suggest additional questions to be addressed to increase our understanding of the ways which schools process information about their core task, the education of students. Although we have argued that students and their needs represent the core concern of schools, it is useful to keep in mind that our results might have been quite different had we focused on other kinds of information (e.g., information on school budgets). Indeed, this may be where some of the respondents in our study are concentrating their time and attention.

Our data show that different school staff must construct their conceptions of students and life in high schools based on differing types of student information. For example, our results imply that social service providers have the most complete information on students' academic performance and behavior, while top-level managers are less likely to receive information on students' classroom performance. Part of the key to understanding how secondary schools work is discovering how differences in access to information on the core technical activities of such schools might account for differences in organizational and professional cultures within schools.

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Figure 1. Proportion of Respondents Who Report Transmitting and Receiving Various Types of Information on Student Academic Performance and Behavior

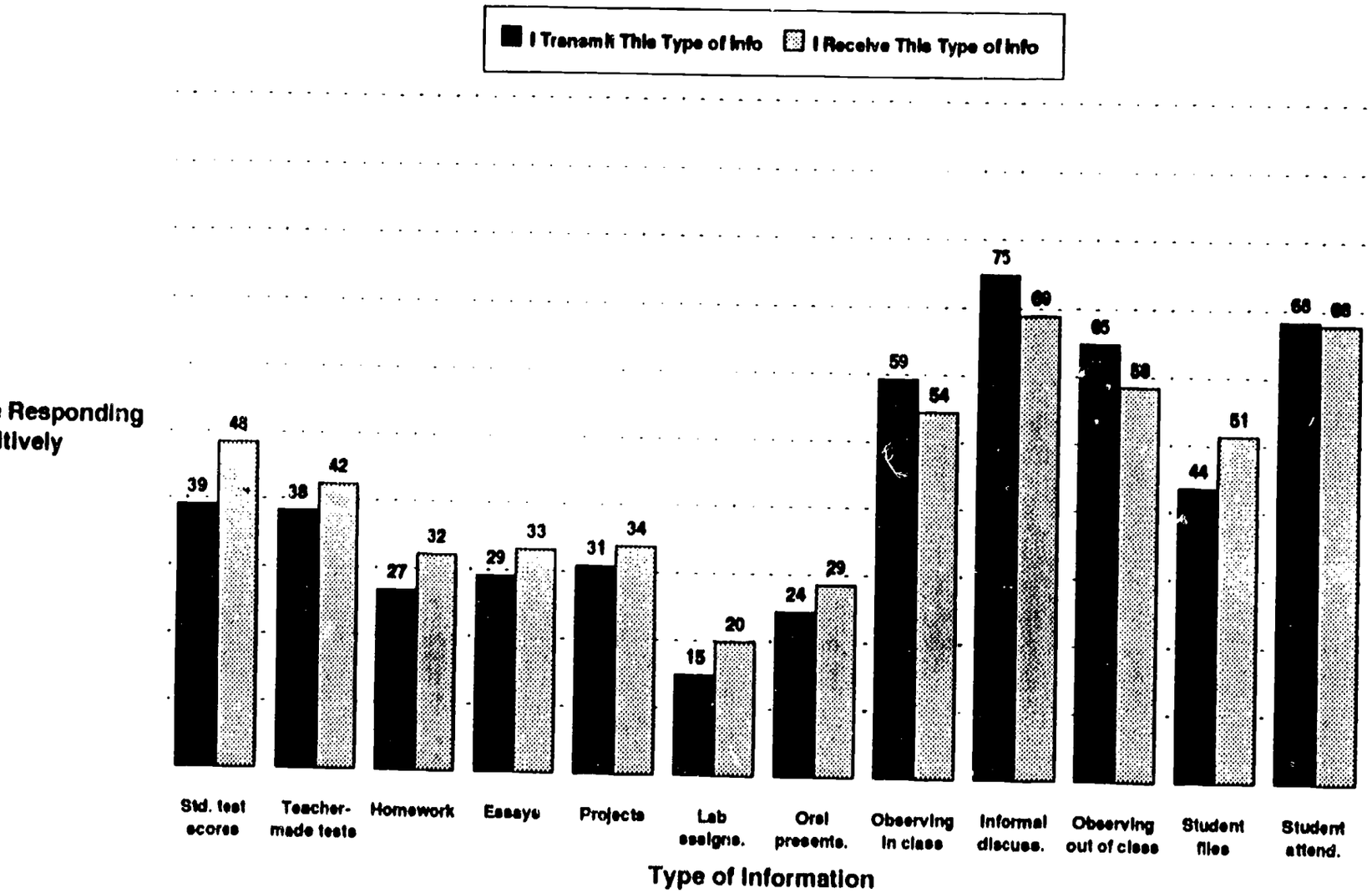

Figure 2. Proportion of Respondents Who Report Transmitting and Receiving Performance on Teacher-Made Tests, by School

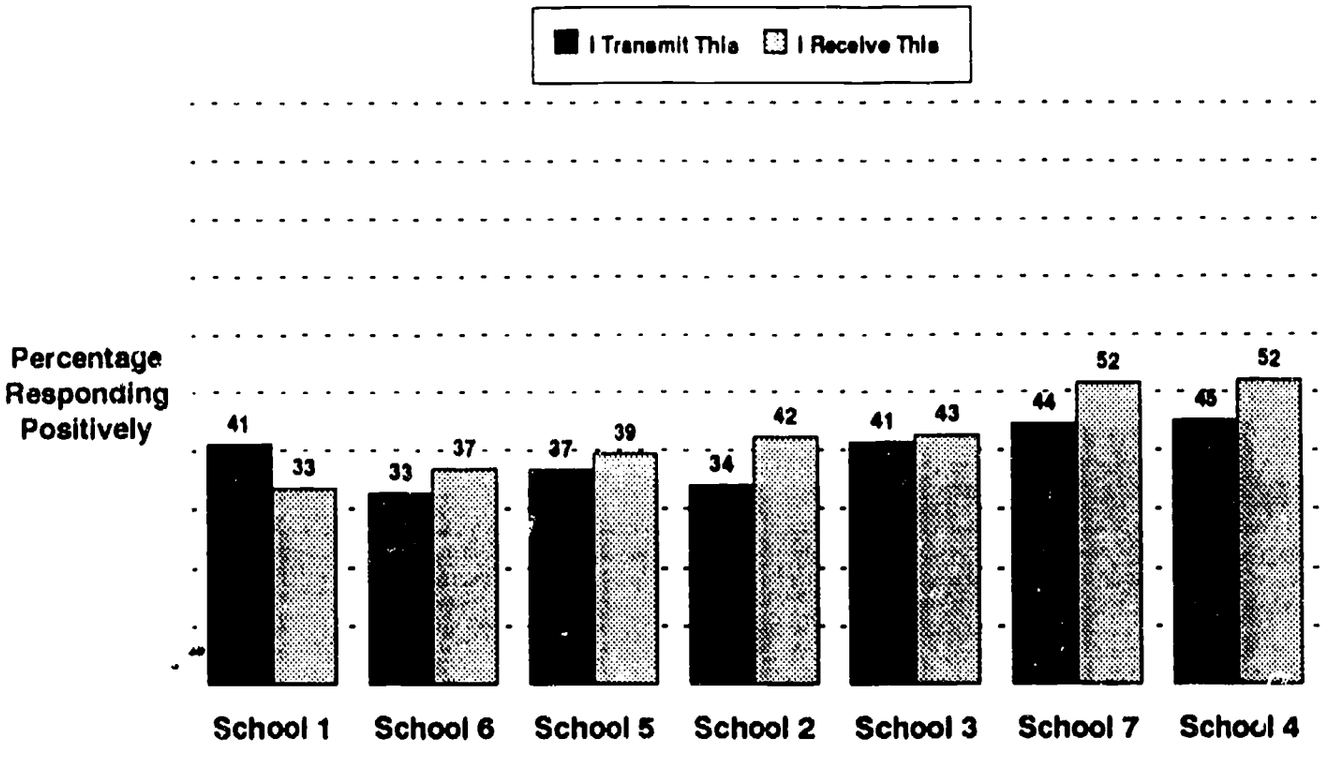

Table 1. Determinants of the Importance of Information

PREDICTOR	b	β
School		
School 1	.159	.073
School 3	-.054	-.022
School 4	-.005	-.002
School 5	-.203*	-.123
School 6	-.104	-.060
School 7	.050	.026
Job Position		
Principal	.259	.038
Assistant Principal	.191	.069
Departmental Administrator	.204	.086
Guidance Staff	.439**	206
Social Service Staff	.553**	.172
Teacher	.106	.080
Instructional Paraprofessional	.073	.024
Influence over School Policy	.108*	.124
Attitudes toward Responsiveness	.138**	.137
Quality of Information	.307**	.237
ADJ. R^2	.217	

*p<.05
**p<.01

Table 2. Determinants of the Receipt of Information

	RECEIPT OF:							
	Standardized Test Scores		Teacher-made Tests		Oral Presentations		Informal Discussions	
PREDICTOR	b	β	b	β	b	β	b	β
School								
School 1	-.163*	-.097	-.020	-.012	.061	.039	.009	.006
School 3	-.029	-.015	-.005	-.003	.092	.050	-.052	-.031
School 4	.065	.044	.105	.072	.131*	.097	-.044	-.034
School 5	-.114*	-.087	-.079	-.061	-.021	-.017	-.075	-.065
School 6	-.044	-.034	.005	.004	.004	.003	-.117*	-.100
School 7	.037	.024	.141*	.091	.265**	.187	.014	.010
Job Position								
Principal	.196	.031	.306	.047	.165	.026	.282	.054
Assistant Principal	.056	.024	.038	.016	.048	.022	.096	.047
Departmental Administrator	.016	.009	-.041	-.022	-.168*	-.097	.216**	.129
Guidance Staff	.004	.002	.079	.044	.019	.011	.152*	.097
Social Service Staff	.333**	.121	.384**	.136	.275**	.111	.290**	.134
Teacher	.100*	.095	-.007	-.007	-.022	-.022	.176**	.190
Instructional Paraprofess'l.	.044	.019	.148	.067	.163	.076	.151	.071
Influence over School Policy	.090**	.130	.142**	.204	.140**	.214	.074**	.122
Collaboration Time	.011**	.100	.007	.070	.011**	.106	.008*	.085
Attitudes toward Responsiveness	.041	.055	.010	.013	.038	.054	.007	.011
Quality of Information	.022	.032	.003	.005	.019	.032	-.075**	-.110
ADJ. R^2	.059		.084		.115		.069	

*p<.05
**p<.01

Table 3. Determinants of the Sharing of Information

PREDICTOR	SHARING OF: Standardized Test Scores b	β	Teacher-made Tests b	β	Oral Presentations b	β	Informal Discussions b	β
School								
School 1	.028	.017	.082	.050	.091	.060	.017	.012
School 3	-.042	-.022	.146*	.076	.188**	.104	-.112	-.070
School 4	.135*	.091	.199**	.136	.156**	.119	-.005	-.004
School 5	-.070	-.054	-.002	-.002	.032	.027	.003	.003
School 6	.020	.016	.071	.056	-.003	-.003	-.025	-.023
School 7	.112	.074	.151*	.098	.188**	.137	.101	.079
Job Position								
Principal	.276	.044	-.257	-.040	-.040	-.006	.189	.039
Assistant Principal	.080	.035	-.075	-.032	.104	.050	.064	.034
Departmental Administrator	.043	.024	-.105	-.056	-.094	-.056	.044	.028
Guidance Staff	.318**	.180	-.013	-.035	.008	.004	.196**	.133
Social Service Staff	.102	.037	.049	.018	.129	.054	.312**	.153
Teacher	.097*	.092	.232**	.220	.166**	.174	.162**	.187
Instructional Paraprofess'l.	.108	.048	.144	.066	.241**	.116	.075	.037
Influence over School Policy	.101**	.148	.101**	.146	.059*	.093	.096**	.168
Collaboration Time	.010*	.090	.004	.036	.008*	.083	.011**	.124
Attitudes toward Responsiveness	.051	.069	.028	.038	.020	.030	.070**	.109
Quality of Information	.079**	.114	.027	.039	.076**	.132	.018	.028
ADJ. R^2	.101		.067		.067		.108	

*p<.05
**p<.01